RACKET FRAME STRUCTURE MADE OF ALUMINUM ALLOY

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a racket frame structure made of an aluminum alloy, and more particularly to a racket frame structure having a plurality of reinforcement ribs that can enhance the strength of the racket frame structure to prevent the racket frame structure from being deformed or broken due to an excessive external force.

2. Description of the Related Art

A conventional racket 1 in accordance with the prior art shown in Figs. 1-3 comprises a frame 11, a plurality of main and cross strings 12 mounted in the frame 11, a protective strip 14 mounted on a periphery of the frame 11 by a plurality of screws 17, a throat 15 mounted in the frame 11, and a grip 16 mounted on a side of the frame 11. The frame 11 has an inner side wall 111 and an outer side wall 112 and is formed with a plurality of string holes 13 each extended through the inner side wall 111 and the outer side wall 112 for passage of the main and cross strings 12.

However, the frame 11 has a constant cross section, so that the frame 11 cannot be designed to have different cross sections at different striking locations of the frame 11. In addition, the frame 11 is subjected to a larger striking force at connections of the main and cross strings 12, so that the frame

11 is easily deformed or broken at the connections of the main and cross strings 12 during a long-term utilization.

SUMMARY OF THE INVENTION

The primary objective of the present invention is to provide a racket frame structure made of an aluminum alloy.

Another objective of the present invention is to provide a racket frame structure having a plurality of reinforcement ribs that can enhance the strength of the racket frame structure to prevent the racket frame structure from being deformed or broken due to an excessive external force.

A further objective of the present invention is to provide a racket frame structure, wherein the main body at the connections of the main strings and the cross strings is strengthened by the reinforcement ribs so as to enhance the strength of the main body, thereby preventing the main body of the frame from being deformed, distorted or broken at the connections of the main strings and the cross strings due to a larger striking force.

A further objective of the present invention is to provide a racket frame structure, wherein the main body of the frame has different cross sections by provision of the reinforcement ribs so that the frame has a variation in shape, thereby changing the configuration of the frame.

A further objective of the present invention is to provide a racket frame structure, wherein the length, width and shape of the reinforcement ribs

can be changed to change the pattern of the frame, thereby enhancing the outer appearance of the frame.

In accordance with the present invention, there is provided a racket frame structure, comprising:

a main body having an inner side wall and an outer side wall;

the inner side wall of the main body having two sides each formed with a plurality of reinforcement ribs.

Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a partially cut-away exploded perspective view of a conventional racket in accordance with the prior art;

Fig. 2 is a partially cut-away plan cross-sectional assembly view of the conventional racket as shown in Fig. 1;

Fig. 3 is a plan cross-sectional view of a frame of the conventional racket as shown in Fig. 1;

Fig. 4 is a plan view of a tennis racket in accordance with the preferred embodiment of the present invention;

Fig. 5 is a partially perspective cross-sectional view of a frame of the racket as shown in Fig. 4;

Fig. 6 is a plan view of the frame of the racket as shown in Fig. 5;

Fig. 7 is a plan view of a badminton racket in accordance with the preferred embodiment of the present invention;

Fig. 8 is a partially perspective cross-sectional view of a frame of a racket in accordance with another embodiment of the present invention;

Fig. 9 is a plan cross-sectional view of the frame of the racket as shown in Fig. 8; and

Fig. 10 is a plan cross-sectional view of a frame of a racket in accordance with another embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings and initially to Figs. 4-6, a tennis racket in accordance with the preferred embodiment of the present invention comprises a frame 2 made of an aluminum alloy, a throat 26 and a grip 27. The frame 2 includes a main body 21, and a plurality of main strings 22 and a plurality of cross strings 220 mounted in the main body 21 to form a racket face 24.

The main body 21 is a hollow body. The main body 21 has an inner side wall 211 and an outer side wall 212 and is formed with a plurality of string holes 23 each extended through the inner side wall 211 and the outer side wall 212 for passage of the main strings 22 and the cross strings 220.

The inner side wall 211 of the main body 21 has two sides each formed with a plurality of reinforcement ribs 25 each located beside the string holes 23. Each of the reinforcement ribs 25 is formed by a punching or rolling process. Each of the reinforcement ribs 25 is recessed and has a mediate

portion 251 and two distal ends 252, wherein each of the reinforcement ribs 25 has a depth gradually increased from each of the two distal ends 252 to the mediate portion 251 thereof. Preferably, the reinforcement ribs 25 are located at connections of the main strings 22 and the cross strings 220 on the main body 21. In such a manner, each of the reinforcement ribs 25 is recessed and has a depth gradually increased from each of the two distal ends 252 to the mediate portion 251 thereof, so that the main body 21 of the frame 2 has different cross sections.

Accordingly, the main body 21 at the connections of the main strings 22 and the cross strings 220 is strengthened by the reinforcement ribs 25 so as to enhance the strength of the main body 21, thereby preventing the main body 21 of the frame 2 from being deformed, distorted or broken at the connections of the main strings 22 and the cross strings 220 due to a larger striking force. In addition, the main body 21 of the frame 2 has different cross sections by provision of the reinforcement ribs 25 so that the frame 2 has a variation in shape, thereby changing the configuration of the frame 2. Further, the length, width and shape of the reinforcement ribs 25 can be changed to change the pattern of the frame 2, thereby enhancing the outer appearance of the frame 2.

Referring to Fig. 7, the frame 2 is available for a badminton racket.

Referring to Figs. 8 and 9, each of the reinforcement ribs 25 is recessed and has a constant depth.

Referring to Fig. 10, the inner side wall 211 of the main body 21 has two sides each formed with a plurality of reinforcement ribs 28. Preferably, each of the reinforcement ribs 28 is protruding outward.

Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such modifications and variations that fall within the true scope of the invention.